

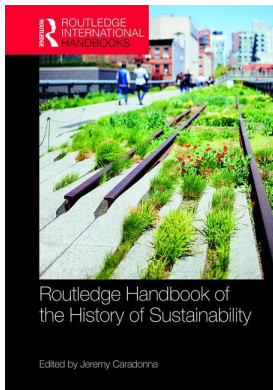
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PART II

Historiography of sustainability



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SUSTAINABILITY

A new historiography

Jeremy L. Caradonna

Sustainability has become a ubiquitous buzzword in our society. We now see the concept publicized in grocery stores, on university campuses, in corporate headquarters, in governmental departments of environmental management, in natural resource management, and in numerous other domains. Indeed, sustainability has been a standard feature of public and political discourse ever since the United Nations adopted the concept in a series of conventions and reports in the 1980s. By the 1990s it had become a familiar term in the world of policy wonkery—we might think of President Bill Clinton’s Council on Sustainable Development, for example—but sustainability had also garnered its first criticism. In 1996, the environmentalist Bill McKibben called sustainability a “buzzless buzzword” that was “born partly in an effort to obfuscate” and which would never catch on in mainstream society: “[It] has never made the leap to lingo—and never will. It’s time to figure out why, and then figure out something else.” (McKibben, for his part, preferred the term “maturity.”)¹

Sustainability has certainly been, at times, misused and greenwashed, but it is quite clear that McKibben was incorrect about its decline. Since the year 2000, over 5,000 published books have included either the words “sustainable” or “sustainability” in the title, compared to zero such books before about 1976.² A quick Google search for the word “sustainable” returns nearly 150,000,000 hits. Moreover, the sustainability movement, as we should now call it, has gained a level of respect and legitimacy that is difficult to dispute. The scholarly fields associated with sustainability have expanded dramatically, new tools and methods have appeared, such as Ecological Footprint Analysis, the Triple Bottom Line, and the Genuine Progress Indicator, which help define, measure, and assess sustainability, and a broad range of governments, businesses, NGOs, and communities have embraced the principles of sustainable living. Virtually every major institution in the industrialized world has either a department or office of sustainability. In a sense, this environmental discourse has won out over rival conceptions of humanity’s relationship to the natural world, even if industrial society remains, by any measure, far from sustainable.³

A growing consciousness about the pitfalls of industrialization has stimulated interest in sustainability. The so-called developed world is 250 years into an ecological assault on the planet that was triggered by the Industrial Revolution and which has forced a serious reappraisal of the values of industrialism and growth-based capitalism. According to several influential scholars, we now live in a geological epoch called the Age of the Anthropocene, in

which “human activity” has become the “dominant driver of the natural environment.”⁴ We are, or have become, a kind of natural disaster. The Fifth Assessment Report (2014) from the Intergovernmental Panel on Climate Change (IPCC), a team of scientists whose job it is to sort through and summarize the state of climate science, makes it clear that Earth’s climate system is warming steadily due to “anthropogenic greenhouse gas concentrations,” such as carbon dioxide, methane, and nitrous oxide, all of which trap and radiate heat (at infrared wavelengths) that would otherwise escape from the Earth’s atmosphere. “It is extremely likely that human influence has been the dominant cause of the observed warming since the mid–20th century.”⁵ Deforestation, land-use changes, and the burning of long-buried fossil fuels are the primary culprits. Climate change has already begun to alter natural systems and the environment in troubling ways: Increasingly unpredictable temperatures and weather patterns, changes in the hydrological cycle that generate droughts and larger and more frequent storms, rising sea levels from melting ice caps, the die off of some species, and so on.

Furthermore, the mounting population of homo sapiens on the planet, which surpassed the 7 billion mark in 2012, combined with man-made pollutants and the appropriation of approximately 30 per cent of the net primary production (NPP) of organic material (i.e. we use or alter much of what nature has to offer) has resulted in devastating consequences for the world’s life-sustaining ecosystems. Here’s Sachs again:

The Millennium Ecosystem Assessment (MEA), a comprehensive study of the state of the world’s ecosystems carried out over several years with the input of more than two thousand scientists, found that during the past fifty years humans have degraded most of the world’s ecosystems and driven down the abundance of other species, some to extinction.⁶

Finally, we are now dealing with a moribund economic system that has drained the world of many of its finite resources, including fresh water and crude oil, generated a meltdown in global financial systems, exacerbated social inequality in many parts of the world, and driven human civilization to the brink of catastrophe by unwisely advocating for economic growth at the expense of resources and essential ecosystem services.⁷ It is with good reason that Nicholas Stern, in his famed *Stern Review* (2006), which calculated the costs of economic action versus inaction on climate change, referred to climate change as an unprecedented form of “market failure.”⁸

The growing interest in sustainability in the *present* and *future* has driven interest in the subject as an *historical field*. Historians now have an abundance of evidence to suggest that present-day cultural concerns dictate the kinds of historical events, discourses, and topics that strike scholars as relevant: Recent interest in gay rights and gay marriage has driven interest in the history of same-sex relationships; the reality of anthropogenic climate change has stimulated a rich exploration of past climate change and its effect on historical societies; in the 1970s, women’s history and “history from below” were motivated in large part by contemporary concerns for gender and class equality. Likewise, the history of sustainability parallels, or perhaps grew out of, the explicit formulation of the sustainability *movement*, which took shape in the 1980s and 1990s, even if, as many have argued, the *concept* of sustainability stretches back at least into the early modern period, and traces its lineage to several global cultures.

Around thirty years ago, sustainability became an identifiable and publicly discussed concept, and grew in large part out of the work of ecologists, such as Howard Odum and C. S. Holling, economists, such as E. F. Schumacher, E. J. Mishan, and Herman Daly, systems theorists, such as those in the Club of Rome, energy specialists, such as Amory Lovins, environmentalists, such as Paul Hawken and Lester Brown (and his Worldwatch Institute), biologists and other scientists,

such as the International Union for Conservation of Nature (IUCN), and diplomats or appointees within the Organisation for Economic Co-operation and Development (OECD) and the United Nations (UN), the latter of whom transformed the concept of sustainability into “sustainable development,” and associated it with a new, more ecologically sensitive approach to development in the Third World.⁹ The UN also sponsored a whole series of conferences and committees which brought the cause of sustainability to the forefront of the international community’s attention: the 1972 Stockholm Conference (and the Stockholm Declaration) on environment and society, the 1980 report called *World Conservation Strategy*, which spoke of sustainable development, and which was written by the IUCN and backed by the United Nations Environment Programme (UNEP), the 1982 “World Charter for Nature” promulgated by the UN General Assembly, the OECD, which wanted to bridge environmental integrity with economic growth,¹⁰ and perhaps most enduringly, the UN-backed World Commission on Environment and Development (1983–7) that produced the so-called Brundtland Report (actually called *Our Common Future*), which popularized the notion that sustainability is about meeting current needs without jeopardizing the ability of future generations to satisfy their own needs.¹¹ This growing concern for the fate of humanity sparked, at the same time, an interest in tracing these concepts, practices, and discourses back in time. The sustainability movement thus established a need for a history of sustainability.¹²

The history of sustainability, which has been written in an explicit manner only since the 1990s, has begun to differentiate itself from other, complementary approaches to history, the most important of which is environmental history. According to J. Donald Hughes, environmental history comprises three interlocking lines of historical inquiry: Humankind’s impact on the natural world, the natural world’s impact on humankind, and cultural values, attitudes, and conceptions of nature and the environment.¹³ The history of sustainability borrows most heavily from the last of the three features of environmental history, but rarely incorporates the kind of empirical environmental emphasis that one might find in, say, histories of water management, floods, fire-based ecosystem modification, or soil erosion.¹⁴

The history of sustainability, as with environmental history, is a broadly interdisciplinary field that draws from numerous disciplines across the arts and sciences, but the former is most concerned with the history of “systems thinking,” or the ways in which human societies have conceptualized, dealt with, and responded to the relationship between the natural environment, human wellbeing, and economic systems. This approach mirrors the three Es of sustainability: Environment, economy, and equality (or social justice, or social *injustice*). As such, the history of sustainability draws from ecology, economics (and especially ecological economics), social justice and the study of human rights, population studies, urbanism, environmental and climate science, sociology, engineering, energy studies, archaeology, and several branches of history—political, cultural, intellectual, and environmental. Its methods thus flow from the fields from which it borrows, but discourse analysis, comparative analysis, and historical anthropology seem to be the most common methodological tools for sustainability historians.

In the same way that the current sustainability movement could not have existed without the classic environmental movement, an historical approach to sustainability would not have come into existence without environmental history. But the two subfields are not identical. Historians of sustainability are as interested, and necessarily so, in the history of social justice and economic history as they are in environmental history. Works such as Lynn Hunt’s 2008 *Inventing Human Rights: A History* and Anthony Brewer’s 2010 *The Making of the Classical Theory of Economic Growth* would be valuable references for a history of sustainability in eighteenth-century Europe, for instance, but neither work has any real relevance to environmental history narrowly defined. The challenge of writing the history of sustainability is to find linkages

between environmental thought and practices, economic policy, and social wellbeing, which can incorporate equality, democracy, mental and physical health, life satisfaction, and so on.

To a certain extent, some environmental historians have been writing the history of sustainability for quite some time, even though they have not necessarily been using the explicit language of sustainability or sustainable development. It is obviously not the case that all environmental history focuses narrowly on the natural environment without discussing linkages to social and economic issues, but classic environmental history was often accused of ignoring, in particular, economics. That said, monographic studies such as Andrew Hurley's excellent *Environmental Inequalities: Class, Race, and Industrial Pollution in Gary, Indiana, 1945–1980*, for instance, could be seen as contributing to the history of sustainability (or in this case, *unsustainability*), since it pays such close attention to the interplay between economics, society, and environment.¹⁵ But the history of sustainability differentiates itself from environmental history both in its explicit discussion of the history and concept of sustainability, in its awareness of and attention to systems thinking and the sustainability movement, and its standard interest in balancing social issues, environmental concerns, and economics. As an offspring of contemporary sustainability studies, it also stands out for its emphasis on the *future* wellbeing of human society and for its relative optimism, in contradistinction to what many see as the gloom and doom of environmentalism and even environmental history. But certainly the nuances can be quite subtle between the history of sustainability and some forms of environmental history, and, as noted above, placing sustainability in an historical framework is an exercise that simply could not have come into existence without the resources and model of environmental history.

One could divide the historiography of sustainability into two broad categories. The first category comprises works that analyze the genesis and development of the concept of sustainability, as well as the formation of the actual sustainability movement at the end of the twentieth century. The second category, which we might call “historical sustainability,” brings together a range of scholarship that seeks to understand the fate of historical societies—that is, how and why some societies collapsed, such as Ancient Rome and the Maya, whereas other societies, such as the Highlanders of New Guinea, have thrived for thousands of years. Both branches of the historiography focus on the complex relationships between sustainability and social collapse—either the outright collapse of historical societies in the past, or the threat of collapse in the future. Scholars of sustainability are thus always interested in sustainability's binaried other: Unsustainability.

This first approach is clearly an attempt to historicize a set of ideas and a movement that exists in the present day. It addresses the following questions: “Where did sustainability come from?”; “What does the concept mean, necessitate, and imply?”; “When, how, and why did people come to see industrial society as unsustainable?” “How did an economic system based on growth and resource consumption come to dominate (or even create) modern industrial societies?” Defining sustainability, and therefore historicizing it, is no easy task, and theorists such as Richard Heinberg, David Holmgren, Albert A. Bartlett, John Dryzek, and others have formulated somewhat different definitions of sustainability.¹⁶ Based on my own synthesis of the historiography, however, the four main ideas that historians of sustainability tend to analyze and historicize are these:

- 1 *The idea that human society, the economy, and the natural environment are necessarily interconnected.* This is an ecological idea that coalesced in the mid twentieth century and which considers human society and economy as part of the broader ecosystem.¹⁷

- 2 *The contention that human societies must operate within ecological limits if they expect to persist over a long period of time.* Sustainability historians are always on the lookout for historical actors who express—either in words or in actions—an interest in living within the limits dictated by nature.¹⁸
- 3 *The notion that human society must engage in wise and sensible future-oriented planning.* The inter-generational component of sustainability has become an important part of the discourse in the present day, but its roots can be found in numerous world cultures, including some aboriginal societies.¹⁹
- 4 *The idea that industrial society, above all, needs to adopt the logic of the small and the local and move away from the logic of the big and the centralized if it hopes to survive and thrive in the long term.* The industrialized world has made things big and centralized, but how did this process unfold, who were its critics, and what alternatives does the study of history reveal?²⁰

One of the pioneers of this branch of the historiography is the eminent historian Donald Worster, who discussed the history of sustainability in *The Wealth of Nature: Environmental History and the Ecological Imagination* (1994). This collection of essays includes a chapter called “The Shaky Grounds of Sustainable Development,” which addresses the conceptual roots of sustainability in forestry and resource economics before criticizing the ambiguity of the idea.²¹ Worster also laid some important groundwork for studying historical conceptions of sustainability in his earlier work, *Nature’s Economy: A History of Ecological Ideas* (1994), which is an intellectual history of changing conceptions of humanity’s relationship to the natural world.²² He made it clear that both ecological “arcadians” and “imperialists” created the conditions, at least in European society, for seeing human society and economy as constituent parts of nature.

Worster is an historian of the Western world, and thus his work focuses almost exclusively on Europe and European settler societies in North America. The same goes for more recent historians of sustainability, who have generally been Europeanists, Americanists, or historians of the Atlantic world. Far less has been written on the discourse of sustainability in the non-Western world (at least by Anglophone scholars), although Richard H. Grove’s *Green Imperialism: Colonial Expansion, Tropical Island Edens and the Origins of Environmentalism, 1600–1860* (1995) represents an important contribution to a more globalized historiography. He argues that European-controlled islands in the Caribbean, the Atlantic Ocean, and the Indian Ocean had a major impact on the development of modern environmental consciousness and the idea of “sustainable development,” which he sees as a blend of East Asian, South Asian, and European ideas about managing the natural world.²³ But in terms of sources, most of what has been written about the history of sustainability has been based on printed sources written by social, intellectual, and political elites in Europe and North America.

John Robinson added to the historiography with an influential article called “Squaring the Circle? Some Thoughts on the Idea of Sustainable Development” (2004), which deals with the differences between “sustainability” and “sustainable development.” For Robinson, sustainability traces its roots back to John Muir’s eco-centric “preservationist” movement, whereas sustainable development is an elaboration of Gifford Pinchot’s pro-business and pro-growth conception of “conservationism.” He then goes on to criticize sustainable development as little more than business-as-usual economic development that does not value the idea of living within biophysical limits (a common critique of the UN’s approach to sustainable development).²⁴ Robinson has historicized in a very helpful way the ongoing debate over whether sustainable development is merely a greenwashed approach to economics and resource exploitation in the developing world. William Cronon has also weighed in on the growing interest in the history of sustainability, and did so in an important plenary address that he gave

at the 2011 conference of the American Society for Environmental History. Although not a published study, Cronon's insightful address argued that the concept of sustainability stretches back long before the word began to buzz. He also discussed the hopeful optimism of the concept and its shortcomings in the political arena.²⁵

Only in the past few years have historians begun to craft overarching narratives of sustainability in the European Atlantic world. Simon Dresner perhaps set this trend with his concise book of 2002, updated in 2008, called *The Principles of Sustainability*. It deals with the period from the late nineteenth century to the present, emphasizes the political aspects of sustainability, and argues, in part, that the collapse of Communism opened up new opportunities (and challenges) for green values.²⁶ Ulrich Grober, the journalist and scholar, has written extensively on the origins of sustainability, which he traces back even earlier than the nineteenth century, to new forms of forest management in England, Germany, and France around 1700. In works such as "Deep Roots: A Conceptual History of Sustainability" (2007) and *Sustainability: A Cultural History* (2012), Grober argues that the history of sustainability begins with the forestry treatises produced by John Evelyn in England, Jean-Baptiste Colbert in France, and especially Hans Carl von Carlowitz in Saxony (Holy Roman Empire). It was the latter, in fact, who invented the word sustainability (*Nachhaltigkeit*) in his 1713 treatise on forestry called *Sylvicultura Oeconomica*.²⁷ Grober has argued persuasively that, in Europe, deforestation and subsequent timber shortages drove interest in creating what was later called sustainable yield forestry.

Grober shows that trees were to early modern European society what fossil fuels are to industrial society: Utterly foundational. The decline of available forest resources spelt disaster both for the poor, who faced higher wood prices, and social elites who managed wood-reliant industries, including mining and metallurgy, which happened to be Carlowitz's domain in Saxony. Although Grober's book moves forward to the present day, his real emphasis, and contribution is situating the origins of sustainability in forestry. Sustainability in the eighteenth century was not yet a blanket critique of a particular mode of existence so much as it was a technical recalibration of governmental policy by a social elite with the training and influence to make that determination. But Carlowitz and others nonetheless laid the conceptual foundation for a more explicit sustainability movement, especially after sustainable yield forestry began to dominate forestry schools in Germany, France, and elsewhere.

My own overview of sustainability in Europe and North America, *Sustainability: A History* (Caradonna 2014), covers the period from the late seventeenth century to the present day, and also discusses the future challenges of the sustainability movement. It draws on the work of historians, such as Worster and Grober, but also makes significant use of economic history and ecological economics. It analyzes the development of sustainable yield forestry and early "systems thinking" in the eighteenth century, but focuses primarily on the period from the nineteenth century to the present. It shows that there were widespread critiques of environmental destruction, resource overconsumption, population growth, and growth-based economics throughout the Industrial Revolution. It makes significant use of the writings of Thomas Malthus, William Stanley Jevons, John Stuart Mill, David Ricardo, Friedrich Engels, and others on the right, left, and center who criticized the myth of industrial progress, or aspects of it, which became the metanarrative of Western society in the modern era. It then moves on the environmental movement and the growth of ecological economics in the 1960s and 1970s, and shows the extent to which the modern sustainability movement grew out of activism and steady-state economics.

The culmination of *Sustainability: A History* is three chapters that deal with recent history, the present day, and the future. The explicit objective is to untangle the complex strands of thought that created the conditions for the emergence of the modern sustainability movement.

Chapter 5 investigates the formation of an explicit sustainability movement in the 1980s and 1990s, with particular attention paid to the politics, treaties, and reports of the United Nations. Chapter 6 profiles the different ways in which sustainability has become integrated into contemporary society: Sustainable design and green building; methods and measurement tools; energy; transportation; housing; higher education; business and finance; economics; urbanism; food systems and localism; and government planning and policymaking.²⁸ The final chapter discusses ten challenges for the future of the sustainability. The goal for both myself and Grober is to demonstrate the extent to which modern sustainability traces back its lineage at least to the eighteenth century. The Enlightenment is, at once, the origin of unsustainable industrialism *as well as* ideas and practices that shaped sustainability.

Aside from the overarching studies, there have been many monographic articles and books since the 1990s that have added to our understanding of sustainability, sustainable development, and the formation of the sustainability movement. Studies by Carl Mitcham (1995), Desta Mebratu (1998), Anne Dale (2001, 2012), and Jacobus A. Du Pisani (2006) have added immensely to the historiography of sustainability by focusing on the institutional adoption and cultural normalization of sustainability concepts.²⁹ Equally important has been the burgeoning body of work on economic “Degrowth,” led by Serge Latouche, Giorgos Kallis, François Schneider, Christian Kerschner, and Joan Martinez-Alier, which offers a speculative framework for pursuing economic sustainability.³⁰ The final works to cite are Stephen Macekura’s *Of Limits and Growth* (2015) and Iris Borowy’s *Defining Sustainable Development for Our Common Future* (2014), both of which have made crucial contributions to understanding the birth, growth, and character of sustainable development.³¹

Although the historiography on sustainability is fairly new, and dates only to the 1990s, it is important to note that much of the recent historical work draws on the historical forays of first-wave ecological economics (late 1960s and 1970s).³² That is, it is not just environmental history but also economic history—and especially the work of ecological economists—that has served as a crucial source base for historians of sustainability, who have made extensive use of E. J. Mishan’s 1967 *The Cost of Economic Growth*, the Club of Rome’s 1972 *The Limits to Growth* (Meadows et al.), E. F. Schumacher’s 1973 *Small is Beautiful*, Herman Daly’s 1973 *Toward a Steady-State Economy*, Daly’s 1977 *Steady-State Economics*, E. J. Mishan’s 1977 *The Economic Growth Debate*, Amory Lovins’s 1977 *Soft Energy Paths: Toward a Durable Peace*, in addition to works by Kenneth Boulding, Howard T. Odum, and Nicholas Georgescu-Roegen. These economic thinkers are important not only because they created ecological economics in the 1970s, but because all of these economists and systems thinkers incorporated historical analyses into their respective economic arguments.³³ In short, they wrote their own economic histories, which challenged the hegemonic economic discourse of the twentieth century. They were all aware that mainstream and neoclassical economists had crafted a narrative that made a certain mode of capitalist economics seem “natural,” “normal,” and “inevitable.” This ubiquitous narrative of economic progress begins with Adam Smith, A.-R.-J. Turgot, Jean-Baptiste Say, and William Huskisson in the Industrial Revolution, passes through Friedrich Hayek, Milton Friedman, and, to a lesser extent, John Maynard Keynes, in the middle twentieth century, and on to the post-war period. Although these economic thinkers represented different strands of economic thought, they also shared much in common.

By contrast, the ecological economists not only rejected the fundamental tenets of neoclassical and growth-oriented economics, with its apathy for the natural world, its adoration of limitless growth, and its ignorance about biophysical limits, but they also revived historical interest in past economic thinkers who had challenged endless economic and population growth, privatization, and/or industrial pollution: Rousseau, Malthus, Ricardo, Jevons, Mill,

Engels, and so on.³⁴ It becomes clear in reading these economists (and systems thinkers) that there are at least two economic traditions in the Western world: the pro-growth and often (but not always) laissez-faire tradition, on the one hand, and the steady-state, ecological tradition on the other (with some figures, such as Mill and Ricardo, playing a role in both). As diverse as these thinkers were, they have been appropriated by ecological economists since the 1970s as part of an alternative genealogy, in which forgotten economic thinkers have been rehabilitated and/or well-known ones, such as Mill, have been reconsidered and reconceptualized. Thus the economics of sustainability, which is today practiced by William E. Rees, Mathis Wackernagel, Peter Victor, Tim Jackson, Daniel O'Neill, Richard Heinberg, and many others, exists as part of a long economic tradition that runs from Rousseau, Malthus, and Mill, through to the ecological economics and systems thinking of the 1970s, and up to the present day.³⁵ It's clear from the historiography that ecological economics provides an indispensable set of sources for historians of sustainability, not to mention those in the present working on building a green economy.

The second branch of the historiography is what we might refer to as “historical sustainability,” and is, in a sense, an older, more geographically, and more temporally diverse approach to history. The most emblematic books in this branch are Joseph A. Tainter's *The Collapse of Complex Societies* (1988) and Jared Diamond's best-selling *Collapse: How Societies Choose to Fail or Succeed* (2005). Diamond's earlier best-seller, *Guns, Germs, and Steel: The Fates of Human Societies* (1997) also finds a place in the historiography, as does Daron Acemoglu's and James Robinson's *Why Nations Fail: The Origins of Power, Prosperity, and Poverty* (2012), Ian Morris's *Why the West Rules—For Now: The Patterns of History, and What They Reveal about the Future* (2010), and Ian Morris's *The Measure of Civilization: How Social Development Decides the Fate of Nations* (2013).³⁶ These books, and the many others like them, are not interested in tracing the origins and development of the sustainability movement in the modern world, although most of these authors, and certainly Tainter and Diamond, are concerned for the fate of modern industrial society. It seems clear, however, that both this branch of the historiography and the one discussed above reflect deep-seated anxieties about the world's current ecological crisis.

But whereas Worster, Grober, Robinson, Caradonna, and Borowy are *historicists* who focus on context, concepts, and culture, the historical sustainability of Tainter, Diamond, Morris, and others tends to employ either structuralist techniques, overarching theories or typologies of collapse, and/or arguments by analogy. (Diamond, in fact, responds to accusations that he's a determinist and a structuralist in the opening pages of *Collapse*.³⁷) Both Tainter, who is an anthropologist and historian, and Diamond, who is a scientist and historian, undertook their respective studies of failed societies because they fear that similar forms of social collapse could occur in the twenty-first century—indeed, for Diamond, collapses have already occurred. Tainter and Diamond are, in a sense, more interested in unsustainability and collapse than they are in identifying the secrets and strategies of successful long-standing societies. The idea in these works is that we (in the present) should not make the same mistakes made by those in the past. These scholars tend to make these arguments by incorporating diverse historical data sets, extrapolating inductive conclusions, and drawing explicit or implicit parallels with modern society. In a sense, historical events are treated as *exempla* to be followed or avoided.

What is most salient about this branch of the historiography, for the purposes of this essay, is the assumption that modern society is “vulnerable” (Tainter's term) to Roman- or Mayan-style social collapse. The implication is that we should learn from the shipwrecks of history because our own world is structurally similar to—or at least subject to the same problems as—the failed experiments in civilization that were Norse Greenland, pre-Columbian Maya, the

Native American Anasazi, Easter Island, and so on. Here, Tainter discusses his methods and his concern for the present:

The concern [with collapse] crosses the social and intellectual spectrum, from the responsible scientists and business leaders who make up the Club of Rome, to the more extreme fringes of the “survivalist” movement. In between one finds a variety of serious, well-meaning persons: environmentalists, no-growth advocates, nuclear-freeze proponents, and others. All fear, for one reason or another, that industrial civilization is in danger. Such fears are frequently based on historical analogy with past civilizations that have disappeared (and indeed it is sometimes suggested that we are about to go the way of the dinosaurs).³⁸

Tainter makes it clear that he is creating a “general explanation of collapse, applicable in a variety of contexts.”³⁹ Even though his book is ostensibly about the decline of the Roman Empire, the Western Chou Empire, the Egyptian Old Kingdom, the Hittite Empire, and so on, including many “simpler societies,”⁴⁰ the book is *really* meant as a warning about the vulnerabilities and perils of our own industrial order.

Similarly, Diamond is interested in collapse because he fears that industrial society is headed for the same fate as the Greenland Vikings and the Anasazi. His strategy is to generalize lessons from a wide variety of contexts, and then use these lessons, inductively, as the basis for a universal theory of failed societies. The idea here is that we should not assume that industrial society invented unsustainable living. Indeed, many societies before the nineteenth century dealt with deforestation, desertification, soil erosion, silted rivers, urban air pollution, drought, crop failure, resource shortages, and population pressures. In *Collapse*, Diamond formulates a five-point framework to understand the collapse of such historical societies as those living on Easter Island, Pitcairn Island, and Henderson Island (all located in the South Pacific), the Anasazi Native Americans who lived in present-day New Mexico, the Maya Civilization of the Yucatán and surrounding areas, and the Vikings who once lived in Southern Greenland. The five factors are as follows:

- 1 environmental damage;
- 2 climate change;
- 3 hostile neighbors;
- 4 friendly trade partners (or lack thereof); and
- 5 social responses to environmental problems.⁴¹

Diamond argues that modern industrial societies face these problems, too, and that an inability to prevent them—or cope resiliently—will lead to population decline and disintegration of the social order.

Of course, not all of the work on societal collapse is comparative, typological, or overarching, and many more localized studies have appeared in recent years. Examples include the archaeologist Arthur Demarest’s *Ancient Maya: The Rise and Fall of a Rainforest Civilization* (2005), the historian Charles C. Mann’s *1491: New Revelations of the Americas Before Columbus* (2006) and *1493: Uncovering the New World Columbus Created* (2011), and the article “Climate Change During and After the Roman Empire: Reconstructing the Past from Scientific and Historical Evidence,” published by Michael McCormick et al. (2012), which draws largely from scientific data to understand the climatic context during the demise of the Roman Empire in the West.⁴² The latter article uses a range of data sets to show that Rome enjoyed surprising

climatic stability during the rise of the Empire and that Egypt, which became Rome's breadbasket in this period, benefitted from favorable growing conditions. But then the climate became more erratic toward the end of the Empire—it became cooler and drier in the 200s AD, possibly as a result of several volcanic eruptions in the period, before eventually returning to a period of sustained warming. "Such rapid short-term changes," the authors argue, "would have had a great capacity to disrupt food production during the most difficult decades that the Roman Empire had faced so far; the political, military, and monetary crisis peaked between c. 250 and 290."⁴³

Although significant differences exist between the two branches of the historiography—the first is historicist, conceptual, and cultural; the second is often structuralist, comparative, typological, and empiricist—each approach has added to our understanding of the past, and perhaps more importantly, our relationship to it. The concern for the present that characterizes the history of sustainability has created a knowledge base that is practical, relevant, and informative, and which can empower the citizens, leaders, and decision-makers who confront the ecological challenges of the present day. Above all the usefulness of a history of sustainability is that it provides essential context for understanding and addressing our current ecological predicament. The body of knowledge that is in the process of forming provides helpful answers to the following questions:

- "How did the sustainability movement come about and what does it criticize and counteract?"
- "How did industrial society become so unsustainable—why are we living in 'global overshoot'?"
- "What kinds of alternative economic models does history offer us?"
- "How can our own society avoid the fate of collapsed societies?"
- "How do social, economic, and environmental factors interrelate?"

By addressing these and similar questions, the history of sustainability has become a culturally and politically charged subfield of the historical discipline, akin to gender history, labor history, race history, and other approaches that eschew a pretense of detached neutrality. The raving success of Jared Diamond's books is just one indicator that the public is deeply interested in this growing body of knowledge.

How can this field improve? Where will it go from here? The history of sustainability could develop in a range of ways in the coming years. First, it needs to establish its own professional and academic identity separate from both environmental history and economic history. Even though sustainability (and sustainable development) is in the process of becoming a set of identifiable academic disciplines, replete with scholarly experts, university courses, degree programs (the College of Sustainability at Dalhousie University, the BA in Environment and Sustainability at the University of British Columbia, the PhD program in Sustainable Development at Columbia University, etc.), journals (too many to list), and so on, the development within the *history* of sustainability has been rather slow going. As of 2016, there is no academic journal that is dedicated uniquely to the subject, and as a result, works that fit within this body of knowledge often end up in journals such as *Environmental History*, *Environment and History*, and even *Ecological Economics*. Clearly, the history of sustainability needs its own journal—and probably its own conferences and/or panels—if it expects to develop its own academic and professional identity. There also needs to be more university courses on the subject. My own seminars on the history of sustainability are still something of an anomaly.

Second, the field needs greater specialization. The relative lack of work on the subject has meant that pioneering historians have had little in the way of historiographical baggage to weigh them down. As a result, studies such as Grober's and my own have ranged over time and space. But the broader narratives need to rely on microhistories and monographical analyses, which will hopefully emerge in the next decade. Greater attention to local conditions and histories will help nuance the broader understanding that we have about sustainability, its past, its present, and maybe even its future. To a certain extent, though, academic publishing houses have begun to take note of the history of sustainability. Michael Egan, for instance, is editing a book series for MIT Press called "History for a Sustainable Future" that has already begun to publish monographs.⁴⁴ Also, it seems clear that at least some of the work on the origins and structures of sustainability is being done outside of traditional history departments—in peace studies, environmental studies, ecology, resource economics, food studies, environmental sociology, and, indeed, "sustainability studies" (a new interdisciplinary academic field), meaning that historians should collaborate with and learn from colleagues outside of history.⁴⁵

Third, with specialization will come a diversification of sources. Although the historical sustainability of Tainter, Diamond, and others has dealt with non-Western societies and archaeological sources, the bulk of sustainability histories have relied on fairly "traditional," printed sources produced by intellectuals, politicians, bureaucrats, economists, ecologists, and so on. Moreover, relatively little attention has been paid to how such countries as China, India, and Japan contributed to the global sustainability movement, and if such studies are being written in those respective countries, then there has not been enough in the way of cross-cultural exchange. Many of the world's indigenous societies appear only sporadically, or not at all, in the current literature (except when they suffer collapse). I hope to see the history of sustainability become more globalized, less Eurocentric, and more nuanced in the years to come.

Fourth, historians of sustainability need to identify and refine their methods. Currently, as noted, there's a split between the more culturally oriented historians and those that rely on comparative, typological history. But how will the field develop from here? Will this division remain or could it be collapsed? It seems clear that whatever happens, the history of sustainability needs to build an interdisciplinary framework that accommodates economic, social, and environmental perspectives.

Fifth, there needs to be a comparative history of resilience. Thus far, both branches of the historiography have focused on either collapse or the rise (and critique) of an unsustainable industrial society. But why is there so much more of an emphasis on failure, decline, and collapse than there is on success, resilience, and survival? This bias is most recognizable in the examination of indigenous societies in historical sustainability, in which societies such as the Maya and the Anasazi enter the story only when they undergo precipitous decline. Why not, at the same time, attempt to understand why some pre-industrial societies *survived* for so long and under such difficult circumstances? We shouldn't only fear collapse; we should also admire resilience. Indeed, virtually nothing has been written about the dynamic endurance of many indigenous societies.⁴⁶

Sixth and finally, the role of economic and social history must remain central to the study of sustainability, just as economics and social justice constitute two of the three Es of sustainability. There has been a tendency, understandable to a certain extent, to cast sustainability as an "environmental" discourse appropriate only for environmental historians. But systems thinking and its history—along with the history of collapse and resilience—requires a dynamic understanding of how society, environment, and economics interrelate and contribute to the successes and failures of human societies.

As the sustainability movement continues to grow, and as our world sinks deeper into ecological crisis, the history of sustainability will continue to expand and develop. It seems like only a matter of time until the field gets its own journals, its own experts, its own PhD students, its own identity. It's exciting, and relatively rare these days, to be involved in the formation of a new academic arena. Just as those who work in the world of sustainability have an opportunity to impact the future of industrial society, so too do historians of sustainability have the opportunity to influence how we in the present view our relationship to the past, and where we want our society to go in the future.

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Notes

- 1 Bill McKibben, "Buzzless Buzzword," *New York Times* (April 10, 1996).
- 2 See the Hollis Catalog at Harvard University.
- 3 See, for instance, the Ecological Footprint Analysis in Mathis Wackernagel et al., "Tracking the Ecological Over-Shoot of the Human Economy," *Proceedings of the National Academy of Sciences* (July 9, 2002), 9269.
- 4 Jeffrey D. Sachs, *Common Wealth: Economics for a Crowded Planet* (London: Penguin, 2008); see also, Paul Crutzen, "Geology of Mankind," *Nature* 415 (2002), 23.
- 5 IPCC, *Climate Change 2013: Synthesis Report* (Cambridge: Cambridge University Press, 2013). It strengthens the language and findings of IPCC, *Climate Change 2007: Synthesis Report* (Cambridge: Cambridge University Press, 2007). For instance, the 2014 report found that there is a 95–100 percent chance that human actions are the primary cause of the warming of the past few decades, whereas the 2007 put the figure at 90–100 percent.
- 6 Sachs, *Common Wealth*, 139. See also MA, *Millennium Ecosystem Assessment* (Washington, DC: Island Press, 2005), online: <http://millenniumassessment.org/en/Condition.html>; for another take on human appropriation of NPP, see Fridolin Krausmann et al., "Global Human Appropriation of Net Primary Production Doubled in the 20th Century," *PNAS* 110, no. 25 (2013), 10, 324–9.
- 7 For instance, Paul Mason, *Meltdown: The End of the Age of Greed* (London: Verso, 2010).
- 8 Nicholas Stern, *Stern Review on the Economics of Climate Change* (London: HM Treasury, 2006).
- 9 Most of these authors and institutions are cited below in the notes. For more on the origins of sustainable development, see Michael Redclift, *Sustainable Development: Exploring the Contradictions* (London: Routledge, 1987). Note, also, that my own book discusses the conceptual differences between sustainability and sustainable development, but I will not dwell on the subject too much in this essay. See Jeremy L. Caradonna, *Sustainability: A History* (Oxford: Oxford University Press, 2014).
- 10 John A. Robinson, whose article is cited below, also contrasts sustainability and sustainable development. Finally, this paragraph merely evokes some of the major names and organizations associated with sustainability, but there is obviously much more to the story. See also John Blewitt, ed., *Sustainable Development*, 3 vols. (London: Routledge, 2014).
- 11 OECD, *The State of the Environment in OECD Countries* (Paris: OECD, 1979).
- 12 World Commission on Environment and Development (WCED), *Our Common Future* (Oxford: Oxford University Press, 1987).
- 13 There simply is not enough time or space to summarize the formation of and current practices of the sustainability movement. This history is discussed by myself, in *Sustainability: A History*, and in Simon Dresner, *The Principles of Sustainability* (London: Earthscan, 2008). For the purposes of this essay, I will focus on the historiography.
- 14 J. Donald Hughes, *What is Environmental History?* (Cambridge: Polity Press, 2006). See also J. R. McNeill and A. Roe, eds., *Global Environmental History: An Introductory Reader* (Abingdon: Routledge, 2012); John R. McNeill, *Something New Under the Sun: An Environmental History of the Twentieth-Century World* (New York: W. W. Norton & Company, 2001).

- 14 There are many examples to cite, but see, for instance: David Soll, *Empire of Water: An Environmental and Political History of the New York City Water Supply* (Ithaca, NY: Cornell University Press, 2013); Emily O’Gorman, *Flood Country: An Environmental History of the Murray-Darling Basin* (Collingwood: CSIRO Publishing, 2012); Steven J. Pyne, *Fire: A Brief History* (Seattle, WA: University of Washington Press, 2001); J. R. McNeil and V. Winiwarter, eds., *Soils and Societies: Perspectives from Environmental History*, 2nd revised edition (Winwick: White Horse Press, 2010); David R. Montgomery, *Dirt: The Erosion of Civilizations* (Berkeley, CA: University of California Press, 2007).
- 15 Andrew Hurley, *Environmental Inequalities: Class, Race, and Industrial Pollution in Gary, Indiana, 1945–1980* (Chapel Hill, NC: University of North Carolina Press, 1995).
- 16 See Richard Heinberg and D. Lerch, eds., *The Post-Carbon Reader: Managing the 21st Century’s Sustainability Crisis* (Heraldsburg, CA: Watershed Media, 2010); David Holmgren, *Permaculture: Principles and Pathways Beyond Sustainability* (Hepburn, Australia: Holmgren Design Services, 2002); Albert A. Bartlett, “Reflections on Sustainability, Population Growth, and the Environment—Revisited,” *Renewable Resources Journal* 15, no. 4 (Winter 1997–8), 6–23; John Dryzek, *Politics of the Earth: Environmental Discourses*, 2nd edition (Oxford: Oxford University Press, 2005).
- 17 This idea is seen, for instance, in the work of ecological economists from the late 1960s and 1970s, discussed below in the text, from the Club of Rome and their approach to systems, and in the historical work of Donald Worster, also cited later in the text.
- 18 This idea is found in the Brundtland Report (WCED, *Our Common Future*), in the work of the Club of Rome, and in Herman Daly’s principal works, cited below.
- 19 This idea is most commonly associated with the Brundtland Report, in addition to other UN and UN-backed documents, including the *World Conservation Strategy: Living Resource Conservation for Sustainable Development* (Gland: IUCN, 1980).
- 20 This idea is forever associated with E. F. Schumacher, whose writings remain a crucial inspiration to the contemporary sustainability movement. His work is also cited below.
- 21 Donald Worster, *The Wealth of Nature: Environmental History and the Ecological Imagination* (Oxford: Oxford University Press, 1994).
- 22 Donald Worster, *Nature’s Economy: A History of Ecological Ideas*, 2nd edition (Cambridge: Cambridge University Press, 1994).
- 23 Richard H. Grove, *Green Imperialism: Colonial Expansion, Tropical Island Edens and the Origins of Environmentalism, 1600–1860* (Cambridge: Cambridge University Press, 1995).
- 24 John Robinson, “Squaring the Circle? Some Thoughts on the Idea of Sustainable Development,” *Ecological Economics* 48 (2004), 369–84.
- 25 William Cronon, “Sustainability: A Short History for the Future,” ASEH plenary talk, Phoenix, Arizona, April 14, 2011.
- 26 Dresner, *Principles of Sustainability*, ch. 9.
- 27 Ulrich Grober, *Deep Roots: A Conceptual History of “Sustainability”*, (Berlin: Wissenschaftszentrum Berlin für Sozialforschung, February 2007); Ulrich Grober, *Sustainability: A Cultural History*. Trans. Ray Cunningham (Totnes: Green Books, 2012).
- 28 Caradonna, *Sustainability*.
- 29 Carl Mitcham, “The Concept of Sustainable Development: Its Origins and Ambivalence,” *Technological Society* 17 (1995), 311–26; Desta Mebratu, “Sustainability and Sustainable Development: Historical and Conceptual Review,” *Environmental Impact Assessment Review* 18, no. 6 (November 1998), 493–520; Ann Dale, *At The Edge: Sustainable Development in the 21st Century* (Vancouver: UBC Press, 2001); Ann Dale, “Introduction,” in *Urban Sustainability: Reconnecting Space and Place*, A. Dale, W. T. Dushenko, P. Robinson, eds. (Toronto: University of Toronto Press, 2012); Jacobus A. Du Pisani, “Sustainable Development—Historical Roots of the Concept,” *Environmental Science* 3, no. 2 (2006), 83–96.
- 30 See, for instance, Serge Latouche, *Farewell to Growth* (Cambridge: Polity, 2010) and F. Schneider, G. Kallis, and J. Martinez-Alier, “Crisis or Opportunity? Economic Degrowth for Social Equity and Ecological Sustainability. Introduction to this Special Issue,” *Journal of Cleaner Production* 18 (2010), 511–18.
- 31 Stephen Macekura, *Of Limits and Growth: The Rise of Global Sustainable Development in the Twentieth Century* (Cambridge: Cambridge University Press, 2015); Iris Borowy, *Defining Sustainable Development for Our Common Future: A History of the World Commission on Environment and Development (Brundtland Report)* (New York: Earthscan, 2014).
- 32 See, for instance, Caradonna, *Sustainability* and Grober, *Sustainability*.

- 33 See, for instance, the following works: Donella H. Meadows, Dennis L. Meadows, Jørgen Randers, and William W. Behrens III (The Club of Rome), *The Limits to Growth* (New York: Universe Books, 1972); E. F. Schumacher, *Small is Beautiful: Economics as If People Mattered* (London: HarperCollins, 1973); Herman E. Daly, ed., *Toward a Steady-State Economy* (New York: W. H. Freeman and Company, 1973); Herman E. Daly, *Steady-State Economics* (New York: W. H. Freeman and Company, 1977); E. J. Mishan, *The Cost of Economic Growth* (Staples, 1967); E. J. Mishan, *Economic Growth Debate: An Assessment* (London: Allen & Unwin, 1977); Amory Lovins, *Soft Energy Paths: Toward a Durable Peace* (London: Penguin, 1977); Kenneth Boulding, “The Economics of the Coming Spaceship Earth,” reproduced in Daly, *Toward a Steady-State Economy*. Originally published in *Environmental Quality in a Growing Economy* (Baltimore, MD: JHU Press, 1966); Howard T. Odum and Elisabeth C. Odum, *Energy Basis for Man and Nature* (New York: McGraw-Hill Book Company, 1976); Nicholas Georgescu-Roegen, *The Entropy Law and the Economic Process* (Cambridge, MA: Harvard University Press, 1971).
- 34 All of these thinkers remain important figures in the sustainability movement. Historians such as Nick Cullather, Matthew J. Connelly, Thomas Robertson, and Jared Diamond, in various writings, continue to engage directly with Malthus and his concerns about resource consumption and overpopulation. Mill has been recast as economist of sustainability ever since Herman Daly revived interest in Mill’s work in the 1970s. Rousseau, Jevons, Engels, and Ricardo are also common referents for ecological economists and other defenders of the green economy. See Caradonna, *Sustainability*.
- 35 See, for instance: William E. Rees, “Ecological Footprints and Appropriated Carrying Capacity: What Urban Economics Leaves Out,” *Environment and Urbanization* 4, no. 2 (October 1992), 121–30; Mathis Wackernagel and William E. Rees, *Our Ecological Footprint: Reducing Human Impact on the Earth* (Gabriola Island: New Society, 1996); Peter Victor, *Managing Without Growth: Slower By Design, not Disaster* (Cheltenham: Edward Elgar Publishing, 2008); Tim Jackson, *Prosperity Without Growth: Economics For a Finite Planet* (London: Earthscan, 2009); Richard Heinberg, *The End of Growth: Adapting to Our New Economic Reality* (Gabriola Island: New Society, 2011).
- 36 Jared Diamond, *Guns, Germs, and Steel: The Fates of Human Societies* (New York: W. W. Norton, 1997); Daron Acemoglu and James Robinson, *Why Nations Fail: The Origins of Power, Prosperity, and Poverty* (New York: Crown Business, 2012); Ian Morris, *Why the West Rules—For Now: The Patterns of History, and What they Reveal about the Future* (London: Picador, 2010); Ian Morris, *The Measure of Civilization: How Social Development Decides the Fate of Nations* (Princeton, NJ: Princeton University Press, 2013).
- 37 See the opening chapter in Jared Diamond, *Collapse: How Societies Choose to Fail or Succeed* (New York: Viking Press, 2005). Moreover, there has been a fair bit of testy exchange between Diamond and his historical critics. In 2003 Diamond spoke at the American Society for Environmental History, and faced major criticisms from environmental historians for his methods and conclusions. See also William H. McNeill’s earlier critique of *Guns, Germs, and Steel*: “History Upside Down,” *New York Review of Books* (May 15, 1997). And see also J. R. McNeill’s “The World According to Jared Diamond,” *The History Teacher* 34, no. 2 (2001), 1–8, in addition to Diamond’s various responses to McNeill and other critics.
- 38 Joseph Tainter, *The Collapse of Complex Societies* (Cambridge: Cambridge University Press, 1988), 2–3.
- 39 *Ibid.*, 3.
- 40 *Ibid.*, 24.
- 41 Diamond, *Collapse*, 11.
- 42 Arthur Demarest, *Ancient Maya: The Rise and Fall of a Rainforest Civilization* (Cambridge: Cambridge University Press, 2005); Charles C. Mann, *1491: New Revelations of the Americas Before Columbus* (New York: Vintage, 2006); Charles C. Mann, *1493: Uncovering the New World Columbus Created* (New York: Vintage, 2011); Michael McCormick et al., “Climate Change During and After the Roman Empire: Reconstructing the Past from Scientific and Historical Evidence,” *Journal of Interdisciplinary History* 43, no. 2 (August 2012), 169–220.
- 43 McCormick et al., “Climate Change During and After the Roman Empire,” 186.
- 44 See Michael Egan’s webpage on the series: <http://eganhistory.com/book-series/>.
- 45 The literature on sustainability and sustainable development is vast and I do not intend to invoke all of it here. My book, *Sustainability: A History*, discusses the current state of the literature and current practices associated with the movement. For the purposes of this essay, I will mention but a few titles. Bill Adams, *Green Development: Environment and Sustainability in a Developing World* (New York: Routledge, 2008); S. Sorlin and P. Warde, eds., *The Future of Nature* (New Haven, CT: Yale University Press, 2013); Wackernagel, “Tracking the Ecological Over-Shoot of the Human Economy”; Richard

- Heinberg, *The End of Growth: Adapting to Our New Economic Reality* (Gabriola Island: New Society, 2011); Jan Gehl, *Cities for People* (Washington, DC: Island Press, 2010); John Ehrenfeld, *Sustainability by Design: A Subversive Strategy for Transforming Our Consumer Culture* (New Haven, CT: Yale University Press, 2009).
- 46 Resilience is a domain of ecology that looks at the ability of ecosystems and species to respond to disturbance and change. C. S. Holling developed the approach in the 1970s, and since then it has become a growing component of ecology. However, virtually nothing has been written on the history of socio-ecological resilience. For the important contemporary studies, see C. S. Holling, "Resilience and Stability of Ecological Systems," *Annual Review of Ecology and Systematics* 4 (November 1973), 1–23; Michael Lewis and Pat Conaty, *The Resilience Imperative: Cooperative Transitions to a Steady State Economy* (Gabriola Island: New Society, 2012); Brian Walker, C. S. Holling, Stephen R. Carpenter, and Ann Kinzig, "Resilience, Adaptability and Transformability in Social-Ecological Systems," *Ecology and Society* 9, no. 2 (2004), article 5; Andrew Zolli and Ann Marie Healy, *Resilience: Why Things Bounce Back* (New York: Free Press, 2012).

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